



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,228	09/24/2003	John Pope	038707.49859C2	2048

23911 7590 03/26/2004

CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER

NGUYEN, SANG H

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/668,228	Applicant(s) POPE ET AL.	
	Examiner sang nguyen	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/24/03</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2877

DETAILED ACTION

This application is a Continuation of Application Serial No. 10/226,638 filed on 10/09//2002 issued Patent No. 6, 678,050 Patent of Date 01/13/04.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-76 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-73 of U.S. Patent No. 6,678,050. Although the conflicting claims are not identical, they are not patentably distinct from each other because all of elements in apparatus and method claims 1, 15, 43-44, and 67 of the application are inherent in the apparatus and method claims 1, 15, 40, 42, and 64, for example, all of elements of a method claim 1 in present invention application is similar to a method claim 1 of Patent No. 6,678,050.

Art Unit: 2877

Information Disclosure Statement

This office acknowledges of the following items from the Applicant: Information Disclosure Statement (IDS) file on 09/24/03 is received and made of record in the file. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 15, 20-21, 25, 33-36, 38, 43-44, 55-58, and 67 rejected under 35 U.S.C. 103(a) as being unpatentable over Mullins (U.S. Patent No. 5,939,717) in view of Turner et al (U.S. Patent No. 6,507,401).

Regarding claims 1, 15, 20-21, 25, 33-36, 38, 43-44, 55-58, and 67; Mullins discloses methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole, comprising:

Art Unit: 2877

* a housing is considered to be a probe or an elongated body (19 of figure 1) for being traversable up and down in the well (12 of figure 1) by a cable/guide (15 of figure 1) for extending down the well (12 of figure 1) from a fixed location (figure 1), wherein the housing (19 of figure 1) including fluid analysis module (25 of figure 1) having a spectrometer is being a spectral detector (38 of figure 2) and a radiation source (30 of figure 2), and a sample interface is being a fluid sample tube (32 of figure 2) to selected a fluids of formation (14 of figure 1), wherein the radiation source (30 of figure 2) for irradiating the fluid sample (32 of figure 2) and the spectral detector (38 of figure 2) for detecting a radiation of the methane or gaseous hydrocarbon (col.3 line 65 and col.4 lines 48--50) from the fluid sample (32 of figure 2); and

* a signal processor is considered to be a control system (16 of figure 1) and an electronics and processing (18 of figure 1) is coupled to the fluid analysis module (25 of figure 1), wherein the signal processor (16,18 of figure 1 and col.4 lines 35-50) for processing output signal from the spectral detector (38 of figure 2). See figure 1-8. However, Mullins teaches all of features in claimed invention except for calculating and determining a concentrate of methane or substance in the fluid sample by the signal processor. Turner et al teaches that it is known in the art to provide calculating and determining a concentrate of methane or substance in the fluid sample by the signal processor (20 of figure 4 and col.12 lines 19-27, col.13 lines 13-35, and col.20 lines 30-56). See figures 1-16.

Art Unit: 2877

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with calculating and determining a concentrate of methane or substance in the fluid sample by the signal processor as shown in the device and method of Turner et al for the purpose of determining the concentration of natural gas (a crude oil/wafer mixture) in the fluid flow.

3. Claims 2-14, 16-19, 22-24, 26-32, 37, 39-42, 45-54, 59-66, 68-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullins and Turner et al as applied to claims 1, 15, 43-44, and 67 above, and further in view of Safinya et al (U.S. patent No. 4,994,671), Mullins et al (U.S. Patent No. 5,167,149).

Regarding claims 2, 37, and 68; Mullins discloses the fluid sample is a face of the coal bed. See figure 1.

Regarding claim 3; Mullins teaches all of features in claimed invention except for the characteristic is emitted, reflected or scattered radiation. However, Safinya et al shows that it is known in the art at to provide the characteristic is emitted, reflected or scattered radiation (see figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the characteristic is emitted, reflected or scattered radiation as shown in the

Art Unit: 2877

method and device of Safinya et al for the purpose of monitoring fluid flowing through a pipeline in an oil refinery.

Regarding claims 4-5 and 39; Mullins discloses the fluid sample is a volume of wafer and oils (col.1 line 60) in the formation (14 of figure 1) in the well (12 of figure 1), wherein the sample is a collected gas from the water (col.2 lines 50-67).

Regarding claims 6-7; Mullins teaches all of features in claimed invention except for the sample is chemically treated or biologically treated before the irradiating. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the sample is chemically treated or biologically treated before the irradiating, since it was known in the art that Mullins discloses a fluid sample formation, (14 of figure 1) having oils or methane or hydrocarbon (CH₄), for example, to being chemically treated or biologically treated sample.

Regarding claims 8-13, 26, 40-42, 46, 48, and 69-76; Mullins discloses all of features in claimed invention except for the radiation source is selected to minimize fluorescence and radiation from the coal bed, wherein the wavelength of radiation source is lower than a wavelength producing maximum fluorescence in the coal, the radiation source is a diode laser or a tunable laser, and at least one lens to focus the radiation from the radiation source. Turner et al teaches that it is known in the art to

Art Unit: 2877

provide the radiation source is selected to minimize fluorescence and radiation from the coal bed, wherein the wavelength of radiation source is lower than a wavelength producing maximum fluorescence in the coal (col.8 lines 31-53), the radiation source is a diode laser or a tunable laser (col.11 lines 20-26), and at least one focus lens (32 of figure 2A) for focusing the radiation from the radiation source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the radiation source is selected to minimize fluorescence and radiation from the coal bed, wherein the wavelength of radiation source is lower than a wavelength producing maximum fluorescence in the coal, the radiation source is a diode laser or a tunable laser, and at least one lens to focus the radiation from the radiation source as taught by Turner et al for the purpose of analyzing the concentration of a crude oil/wafer mixture in the fluid flow.

Regarding claims 14, 16, and 64; Mullins discloses detector is an optical fiber transmitting the characteristic radiation to a charge coupled device from the radiation source. (See figure 2 and col.5 lines 45-67).

Regarding claims 17-19; Mullins teaches all of features in claimed invention except for lowering housing or package to at least a second depth down the well and measuring a concentration of methane at the second depth. However, at figure 2 of Safinya et al discloses lowering housing or package to at least a second depth down the

Art Unit: 2877

well and measuring a concentration of methane at the second depth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with lowering housing or package to at least a second depth down the well and measuring a concentration of methane at the second depth as shown in the device and method of Safinya et al for the purpose of monitoring different fluid sample flowing through a pipeline in an oil refinery.

Regarding claims 22-24, 32, and 49-50; Mullins ('717) teaches all of features in claimed invention except for a filter for filtering the radiation from the radiation source, and another filter for filtering the radiation before detector. However, Mullins et al ('149) discloses that it is known in the art to provide a filter (32 of figure 3) for filtering the radiation from the radiation source (31 of figure 3), and another filter (col.5 lines 10-12) for filtering the radiation before detector (35 of figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins ('717) with a filter for filtering the radiation from the radiation source, and another filter for filtering the radiation before detector as shown in the device and method of Mullins et al ('149) for the purpose of filtering and reducing noise radiation.

Art Unit: 2877

Regarding claims 27-30; Mullins discloses all of features in claimed invention except for the depth is at a top of wafer column, a top of a first coal bed, or a top of a second coal bed in the well. However, at figure of Safinya et al teaches that it is known in the art to provide the depth is at a top of wafer column, a top of a first coal bed, or a top of a second coal bed in the well. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the depth is at a top of wafer column, a top of a first coal bed, or a top of a second coal bed in the well as shown in the device and method of Safinya et al for the purpose of monitoring fluid flowing through a pipeline in an oil refinery.

Regarding claim 31; Mullins teaches all of features in claimed invention except for the sample is a bacterium or bacterial community. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with sample is a bacterium or bacterial community, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for intended use as matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claims 45, 47, and 51-54; Mullins discloses the sample is methane adsorbed to coal (col.4 lines 2-4), the positioner having an adjustable device for

Art Unit: 2877

extending from the probe and pressing a side of the wellbore, wherein the probe/housing has the spectrometer (figures 1-2).

Regarding claims 59-63; Mullins discloses all of features in claimed invention except for the radiation source is a UV spectrometer, a near IR spectrometer, Raman spectrometer, an infrared spectrometer, or fluorimeter. However, Turner et al teaches that it is known in the art to provide the radiation source is a UV spectrometer, a near IR spectrometer, Raman spectrometer, an infrared spectrometer, or fluorimeter (col.1 lines 18-22 and col.2 lines 9-17). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the radiation source is a UV spectrometer, a near IR spectrometer, Raman spectrometer, an infrared spectrometer, or fluorimeter as shown in the device and method of Turner et al for the purpose of classifying and analyzing the concentration of natural gas (a crude oil/wafer mixture) in the fluid flow by using different spectrometers.

Regarding claims 65-66; Mullins teaches all of features in claimed invention except for the probe or tool having a first reflector/mirror to direct the radiation from the radiation source to a sample and a second reflector/mirror to direct the characteristic radiation from the sample to detector. Safinya et al shows that it is known in the art to provide the probe or housing (200 of figures 6-7) having a first reflector/mirror (135a of figure 6) to direct the radiation from the radiation source (130 of figure 6) to a sample (132 of figure 6) and a second reflector/mirror (135e of figure 6) to direct the characteristic radiation from the sample to detector/ spectrometer (136 of figure 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify methods and apparatus for measuring using a spectrometer in a coal bed methane well with a borehole of Mullins with the probe or tool having a first reflector/mirror to direct the radiation from the radiation source to a sample and a second reflector/mirror to direct the characteristic radiation from the sample to detector as shown in the device and method of Safinya et al for the purpose of monitoring fluid flowing through a pipeline in an oil refinery.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Givens (4,066,892) discloses coal logging system.

Art Unit: 2877

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Frank Font, can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nguyen/ sn

March 03, 2004

A handwritten signature in black ink, appearing to read "Frank G. Font".

Frank G. Font
Supervisory Patent Examiner
Art Unit 2877
Technology Center 2800